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Indian Standard

SYMBOLS FOR THE PICTORIAL STANDARDIZATION OF AIRCRAFT CARGO HANDLING SYSTEMS FOR UNIT LOAD DEVICES (ULDs)

भारतीय मानक

यूनिट लोड युक्तियों के लिए हवाई सामान प्रहस्तल तंत्र के सचित्र मानकीकरण के संकेत

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 1990 **Price Group 2**

Air Cargo Handling Sectional Committee, HMD 13

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards on 18 December 1989, after the draft finalized by the Air Cargo Handling Sectional Committee had been approved by the Heavy Mechanical Engineering Division Council.

In the preparation of this standard, assistance has been derived from ISO/DIS 9031 'Air cargo equipment — Handling systems for unit load devices (ULDs) — symbols for pictorial representation' issued by the International Organization for Standardization (ISO).

Indian Standard

SYMBOLS FOR THE PICTORIAL STANDARDIZATION OF AIRCRAFT CARGO HANDLING SYSTEMS FOR UNIT LOAD DEVICES (ULDs)

1 SCOPE

1.1 This standard specifies symbols for the pictorial standardization of aircraft cargo handling systems for unit load devices (ULDs).

1.2 These symbols shall be applicable to all aircraft cargo handling systems for underfloor as well as for main-deck systems. The conveyance, guidance, restraint power drive unit and degree of automation for the total cargo handling system shall be depicted using the symbols.

2 SYMBOL SYSTEM

2.1 Each cargo symbol consists of a basic symbol, which represents basic functions, such as physical function and load direction. In the drafting of the symbols, account has been taken of such factors as maximum simplicity, intelligible geometry, optical similarity and good retainability.

2.2 The symbols are designed to be self-explanatory, and they are used alone or in combination to generate multiple components.

2.3 A symbol characterizes a component function, but not the detail design and manufacturing method.

2.4 The standard symbols are suitable for use with computer aided design.

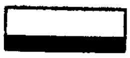
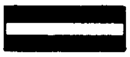
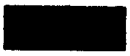
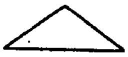
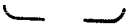
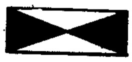
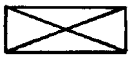
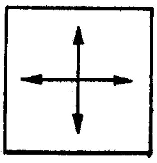
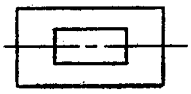
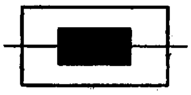
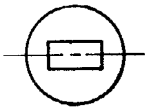
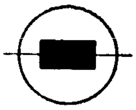
2.5 The symbols shall be as given in Table 1 with explanatory description.

3 APPLICATION

3.1 An example of the application of some of the symbol to a typical-semi-automatic underfloor cargo system for the latching and guiding of pallets and container is given in Fig. 1.

Table 1 Symbols

(*Clause* 2.5)

Sl No.	Component	Symbol	Description
1	Latch	 [1]	Retractable/relocatable restraint mechanism, capable of bearing a horizontal load perpendicular to its load carrying side.
2	Latch double-acting	 [1]	Retractable/relocatable restraint mechanism, capable of bearing a horizontal load perpendicular to both of its sides.
3	Stop	 [1]	Fixed restraint, capable of bearing a horizontal load perpendicular to its length.
4	Vertical restraint		Horizontal protrusion from the upper part of a fixed or retractable restraint, capable of bearing a vertical load.
5	Overridable		Device which will cause the automatic overriding of a component in which it is incorporated.
6	Fixed guide		Fixed position device, capable of guiding along its length and of bearing horizontal load perpendicular to its length.
7	Retractable guide		Retractable/relocatable position device, capable of guiding along its longest side and of reaching a horizontal load applied against its longest side.
8	Omnidirectional transfer area		Panel or area which contains a number of omnidirectional conveyor units for multidirectional conveyance of ULDs.
9	Power drive unit — retractable		Self-lifting and/or retractable power drive unit used to move ULDs along a conveyorized system.
10	Power drive unit — fixed height		Spring-loaded or a fixed height power drive unit used to move ULDs along a conveyorized system.
11	Power drive unit — rotatable/retractable		Rotatable or turnable power drive unit, which is also self-lifting and/or retractable, used primarily in an omni-transfer area to move ULDs.
12	Power drive unit — rotatable fixed height		Rotatable or turnable drive unit, which is spring-loaded or fixed height, used primarily in an omni-transfer area to move ULDs.

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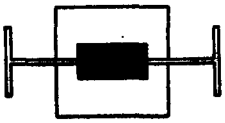
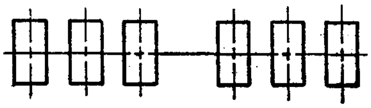
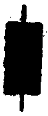
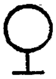
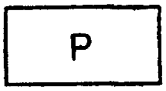
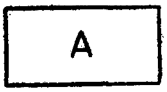
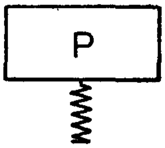
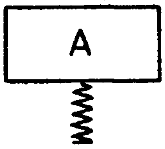
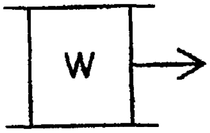
[1] Area shaded black = load-carrying side.

Table 1 *(Concluded)*

Sl No.	Component	Symbol	Description
13	Power drive unit — shuttle		Fixed position power drive unit which moves ULDs by other means than by friction wheels or rollers.
14	Roller conveyor		Series of transport rollers in a common channel or support, continuous between the roller symbols as shown, for two directional movement of ULDs.
15	Braking roller		Device used in conjunction with a roller which will retard the movement of ULDs generally in one direction.
16	Tie-down point (omni-directional)		Tie-down device or provisions for a tie-down device, permanently attached to structure or cargo system components in order to allow, use of supplementary straps.
17	Powered system control panel		Semi-automatic cargo loading system. The conveyance of ULDs is achieved by means of power drive units, but the guiding and latching components are manually operated.
18	Automatic system control panel		Fully automatic cargo-loading system. The conveyance of ULDs is achieved by means of power drive units, the guiding, positioning and latching is activated automatically.
19	Power system remote control system		Semi-automatic cargo-loading system. The conveyance of ULDs is achieved by means of power drive units, but the guiding and latching components are manually operated.
20	Automatic system remote control panel		Fully automatic cargo-loading system. The conveyance of ULDs is achieved by means of power drive units; the guiding positioning and latching is activated automatically.
21	Winch		Fixed or relocatable, powered conveyance system using, for example, a winch indicating the direction of conveyance.

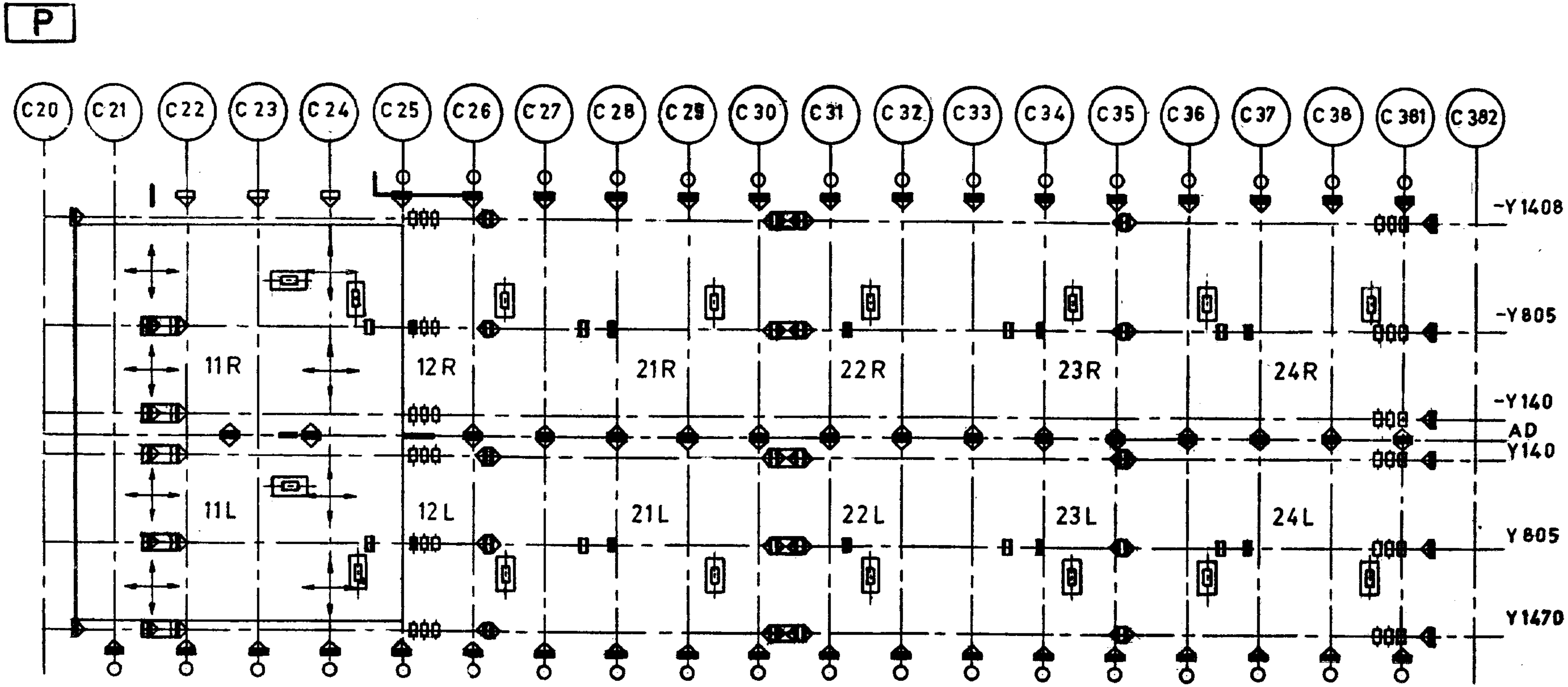


Fig. 1 Typical Semi-Automatic Underfloor Cargo System

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Telephones : 331 01 31, 331 13 75
Telegrams : Manaksanstha
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Regional Offices:

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
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